# 3.11 SLOVENIA

## ATI FOR ACCESSIBILITY TO TECHNICAL INFRASTRUCTURE DURING THE SELECTION OF APPROPRIATE PLANNING ZONES FOR RESIDENTIAL LAND USE

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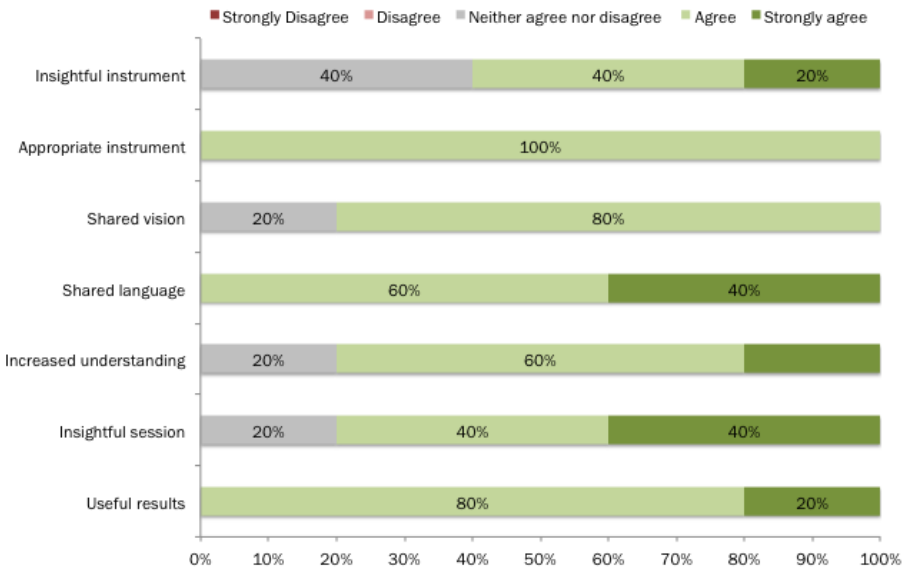
| Participants' profile | # Participants: 5 |
|---|---|
| Male \| Female | 2 \| 3 |
| 31–45 \| >60 | 4 \| 1 |
| Urban planner \| Municipal engineer | 2 \| 3 |
| Public organisation \| Private organisation | 2 \| 3 |

Views about the session and the instrument



### ATI – from accessibility to land development potential

The proposed instrument defines the accessibility to technical infrastructure at the strategic level of spatial planning. Accessibility to technical infrastructure is in the first stage defined in terms of the physical accessibility to the technical infrastructure. Physical accessibility to technical infrastructure is measured as the accessibility to the provided land use at the local level, taking into account the capacity of the existing and planned technical infrastructure and the physical distance from the technical infrastructure. However, the final goal of the instrument is to define the cost accessibility to the technical infrastructure as well. The aspect of cost accessibility has not been included in the workshop.

The instrument is based on spatial analysis, produced in a GIS environment. The physical accessibility to technical infrastructure is defined using the fuzzy logic method. The result is shown on a raster map as a degree of accessibility, ranked between 0 (low) and 1 (high).


Figure 3.26: The logic of ATI

The results can be presented separately (e.g. as a map showing accessibility to water services) or combined (e.g. a map showing accessibility to water services and also accessibility to energy services, public roads, etc.).

The drafting of the technical infrastructure design generally follows the implementation of the spatial plan. Then, it is often already too late to introduce effective and sustainable planning. The proposed instrument defines the costs and benefits of providing technical infrastructure at the strategic planning level. The instrument offers a new dimension for planning practitioners. Instead of maps showing technical infrastructure networks, the

instrument indicates the degree of accessibility to technical infrastructure using different shades of colour (brighter for lower accessibility and darker for higher).

Legal provisions and practice in Slovenia do not promote the assessment of the actual costs of the technical infrastructure in the planning and implementation phase of land development. Therefore, it is necessary to improve the situation and to analyse the accessibility to technical infrastructure as described above. The proposed instrument is an attempt to achieve this goal. The final result of the ATI will provide the expertise basis to help stakeholders in the field of spatial planning to determine the appropriate planning zones for residential land use. In order to define specific spatial interventions (e.g. the construction of an additional section of the water supply network) the results have to be presented in a very transparent way.

### Setting the scene

The group was composed of 5 participants from two bodies, the Municipality of Domžale and the Urban Planning Institute of Ljubljana. Representatives of the municipal administration of the Municipality of Domžale included

- one participant from the Department of Spatial Planning, who mainly works in the field of urban open space;
- one participant from the Department of Spatial Planning, who works on spatial planning with some background in transport accessibility.

Representatives from planning practice from the Urban Planning Institute of Ljubljana included

- the Head of the Planning Department for technical infrastructure, who has many years of experience in planning practice;
- The other two participants mainly work on programmes for the supply of technical infrastructure and spatial analysis regarding technical infrastructure in a GIS environment;

The participants from the Municipality of Domžale were familiar with the concept of accessibility, but mainly in the field of transport accessibility. Accessibility indicators are not used regularly in their daily work. They did, however, stress that if future spatial legislation requires the use of accessibility indicators when preparing spatial planning acts, they will certainly use them. The representatives of planning practice from the Urban Planning Institute of Ljubljana were much more familiar with the concept of accessibility and the different ways to apply it. They are most familiar with transport accessibility and mobility. Accessibility indicators are not yet widely used in their work, but

the concept of accessibility to technical infrastructure shown in the workshop seemed relevant for their daily work.

### Describing the workshop

*Step 1*

The initial step was done in person with each workshop participant. The pre-workshop survey was conducted at those separate physical meetings. This format made it easier to explain the content of the proposed accessibility tool and to identify areas of interest for each participant. The findings were used when preparing the simulation for the workshop.

The actual planning problem presented in the workshop also covered the instrument developers' interest to answer the question whether physical accessibility to technical infrastructure could be one of the suitable accessibility indicators already at the strategic level of planning. In that context, the defined planning problem was formulated as follows: Where should the new planning zones for residential land use within the Municipality of Domžale be located?

The accessibility indicator used to determine the appropriate planning zones for residential land use was physical accessibility to technical infrastructure.

*Step 2*

In order to ensure the smooth running of the workshop process, several interventions (scenarios) were developed before the actual workshop. We took into account the wishes expressed by the representatives from the Municipality of Domžale (Department of Spatial Planning). Their wish was to show interventions not only with regard to existing but also with regard to planned technical infrastructure. The interventions were shown on raster maps projected on the screen and were also printed in workbooks, which were distributed to each participant.

The representatives from the Urban Planning Institute of Ljubljana did not have any specific wishes regarding the interventions. Taking into account their prior knowledge of the accessibility models, they were very keen to understand the model and its limitations. The presented scenarios helped them to understand the model (meaningfulness of input data in the model) and to ask more specific questions regarding its limitations. Their thinking was that if they could understand the changes shown as different scenarios on maps then they could in turn use these types of maps when presenting different scenarios to policymakers and decision-makers during the spatial planning process.

*Steps 3 & 4*

As mentioned above, some scenarios were prepared before the actual workshop. The model in its current form can be used to develop interventions but not in real time; in order to ensure the possibility of real-time interventions more programming in a GIS environment is needed. As the evaluation of interventions and development of strategies was not part of the workshop, the different scenarios were shown only as a method to enable better understanding of input and output of the proposed instrument.

Figure 3.27: The setting of the Ljubljana workshop

### Lessons on usability

One main finding from the workshop was that with some additional key parameters the model can be very useful for the purpose of spatial planning. The addition of cost accessibility is particularly useful as it can show not only physical accessibility to technical infrastructure but also the cost consequences of different planning scenarios from a technical infrastructure point of view (for example, the cost of a new settlements area).

From the civil engineering point of view, the separate maps showing accessibility to only one type of technical infrastructure (e.g. the water supply network) are essential. However, from the spatial planner point of view combined maps (showing accessibility to all types of technical infrastructure) are more usable.

In terms of usability, several interventions (scenarios) developed before the actual workshop enabled the participants to draw two conclusions from the proposed accessibility model:

- Representatives from the municipal administration of Municipality Domžale (Department of Spatial Planning) became aware of the fact that technical

infrastructure should play a vital role in the selection of the appropriate planning zones for residential land use (as mentioned above, according to Slovenian spatial legislation, accessibility to technical infrastructure is not considered a key influential factors at the strategic level of planning);
- Representatives from the planning practice saw the proposed model as a tool to help them in their effort to explain their solutions to decision-makers in the field of spatial planning.

The current model can be used to develop interventions but not in real time (in order to ensure the possibility of real-time interventions additional programming in a GIS environment is needed). The time and effort needed to ensure real-time capability of the instrument are not financially viable at the moment. The instrument is still in the stage of academic research. In its current form the instrument and the output maps are seen as providing an expertise base knowledge to help stakeholders understand more easily the impact of accessibility to technical infrastructure when deciding on appropriate planning zones for residential land use.

From the practitioners' point of view, additional parameters need to be included in the proposed model. The question that remains unanswered is how many parameters to include, because each new parameter increases the risk of reduced transparency/clarity of the proposed model.